

# Active Air Purification System



# Introduction

Active Air Purification is a system that produces charged ions that attack organic matter and will reduce airborne and surface mold, bacteria, viruses and odors. REV partnered with USSC and RGF to introduce Active Air Purification to the fire service.

The unit uses patented Photohydroionization Cell (PHI Cell) technology from RGF Environmental Group, Inc. This unit directs UV light at a catalyst panel which releases Hydro-Peroxide and Hydroxide ions. The charged ions are attracted to organic matter and react with and reduce or eliminate them.

The all-stainless-steel case has been designed specifically for emergency service use with improved airflow and increase performance.



# Key Selling Points

## Sanitizes air and surfaces\*

- Kills 99% of germs, microbes, viruses, and bacteria in the air and on surfaces
- Proven reduction in sneeze germs by 99% within three feet
- Proven efficiency on microbes (3rd party tested on H1N1, Avian Flu, sneeze test)

## Proven impact on odor reduction

- Kills the germs that cause odors

## Safe for all passengers

- Levels of peroxides generate are well below the OSHA limits
- Millions in service globally

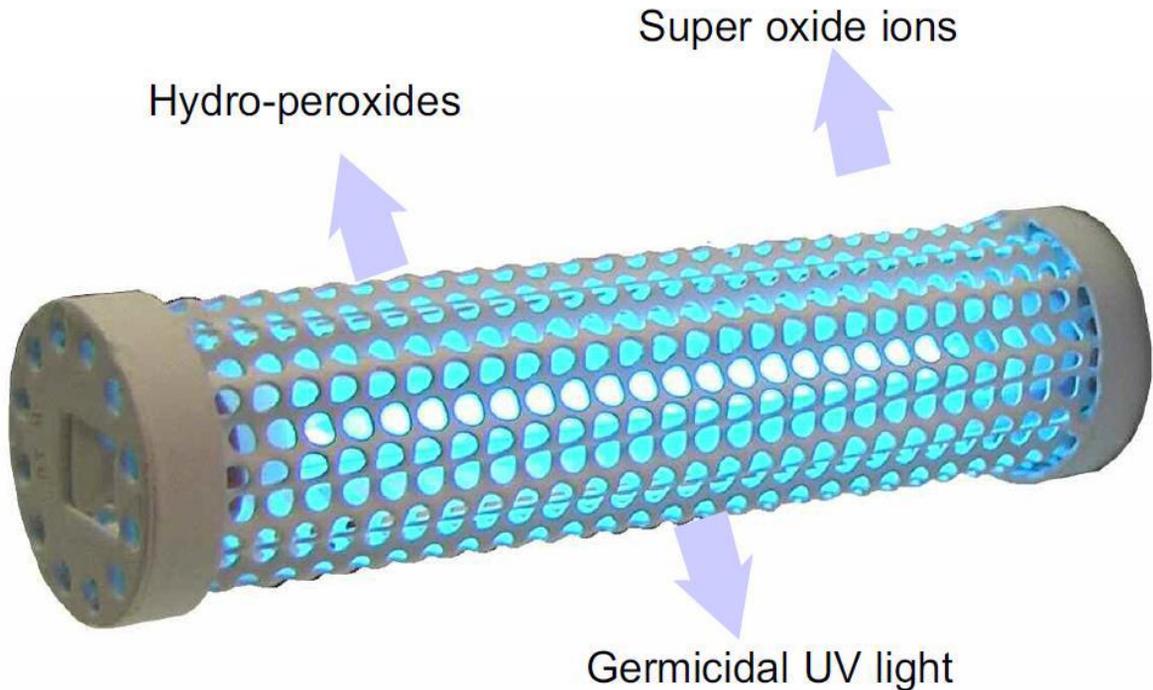
## Lowers overhead cost of traditional disinfectants

- Works year-round on a single bulb

\*The system will not prevent the transmission of a virus or bacteria if you come in close contact with an infected person. It may reduce the risk of transmission by destroying air and surface borne contaminants.

# How it Works

The Photohydroionization (PHI) Cell creates super oxide ions, hydroperoxides and passive negative ions by directing UV light on hydrated quad-metallic target.



The ions are dispersed throughout the cab and react with and oxidize organic compounds in the air and on surfaces. The oxidation reaction destroys mold, bacteria and viruses. It reacts with VOCs (Volatile Organic Compounds) and reduces smoke and odors.

# Power Options

The Active Air Purification system is available in either a 12 Volt DC or a 110 volt AC version.

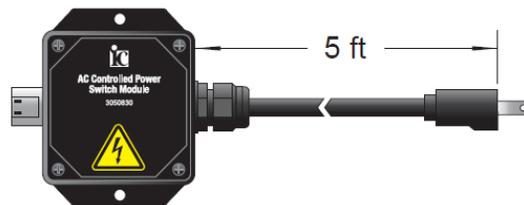
## Vehicle Installation – 12 Volt

### 12 Volt ON when Driving Only

The 12 volt version is intended for installation in an apparatus. The unit will come with wires for connection to a 12 Volt source (positive wire and ground wire). By connecting this to an appropriately protected (fused) ignition circuit the unit will run any time the ignition is ON.

### 12 Volt ON when Driving or on Shorepower

An installation module and wiring harness is available (sold separately) that will power the unit while the ignition is ON. The module senses when the shorepower charging is active and will cause the unit to continue decontaminating the cab air while parked in the station.



## Office Installation – 110 Volt

### 110 Volt Powered From Wall Outlet

The 110 Volt version is equipped with a standard wall plug for use in interior rooms or offices. The unit is sufficient to condition standard room spaces up to 1500 sq feet in size. The unit can be placed on a flat surface, or mounted on the wall.

# Locating the Unit

## Mounting Location - General

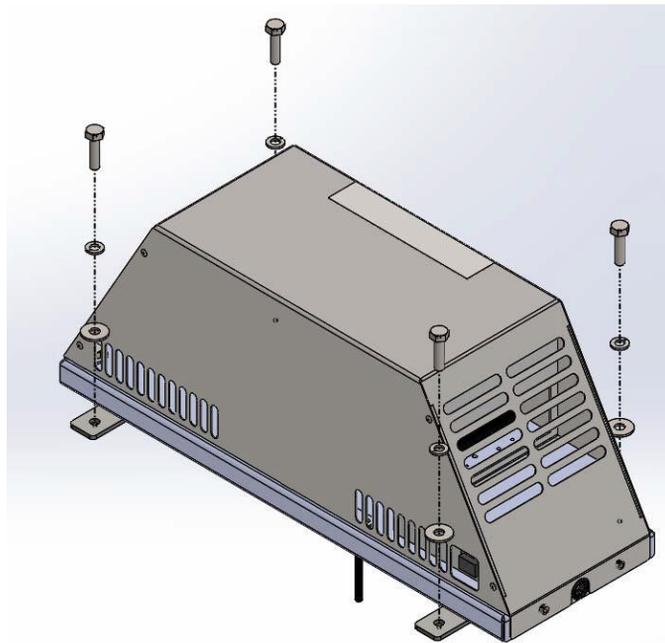
The mounting location is flexible, but to gain the best performance the unit should be as close to a central location as practical. Locating the unit on the floor is not recommended.

## Mounting Location – Vehicle Cab

The preferred location for the unit is centered in the cab. This could be on the back of the engine tunnel, the side wall, or the ceiling.

## Mounting Location – Room or Office

The 110 volt unit can be set on a flat furniture surface, or mounted on the wall.



# Testing and Use

## Use

- PHI Cell Technology has been in use for over 20 years.
- More than 4 million units in service.
- Originally used in commercial applications such as dental offices and restaurants.

## Testing

- 3<sup>rd</sup> Party Tested at an Environmental Laboratory
- 99% kill rate on bacterial, mold, viruses (COVID, H1N1, E.coli)
- Effective against VOCs (carcinogens)

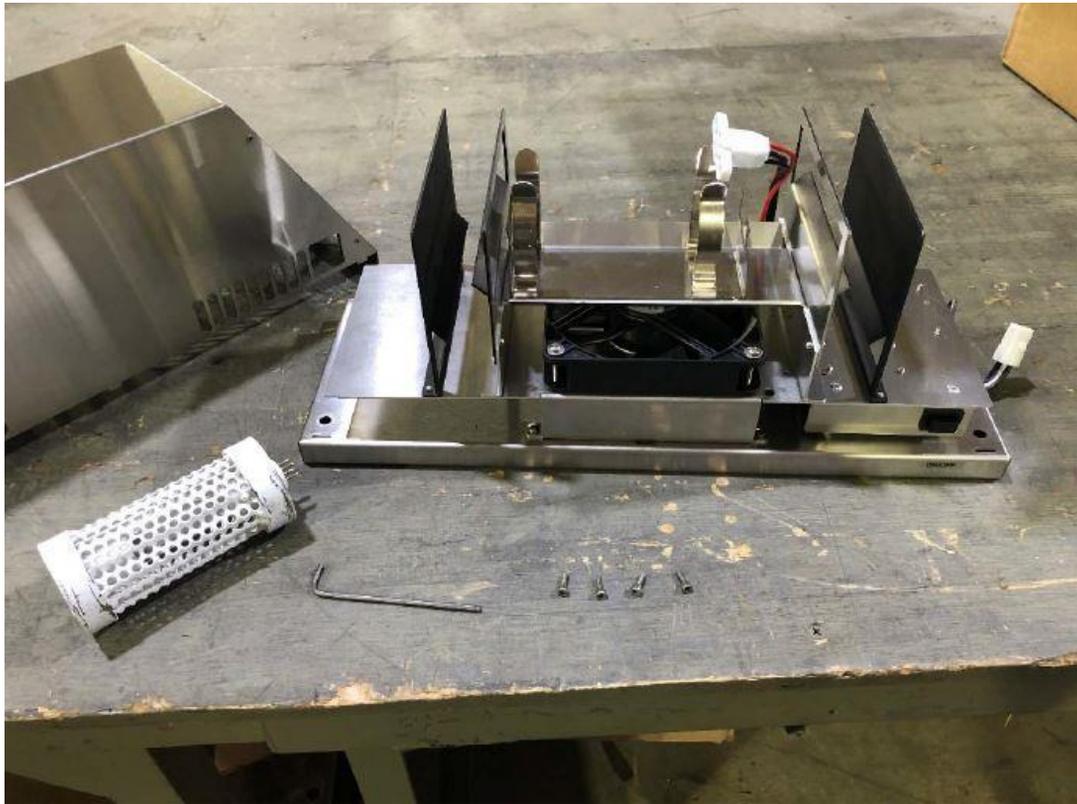
## Effects

- Ozone, non additive to current levels
- H<sub>2</sub>O<sub>2</sub> production 1/10<sup>th</sup> of OSHA limits
- UV-C not detectable 6" (15 cm) from unit

# Maintenance

## Bulb Replacement

The unit requires annual replacement of the PHI Cell. Over time the catalyst degrades and must be replaced for the unit to perform. The replacement cell is available from REV parts. It can be installed with simple tools. A reminder date label is included.



# Competitive Products

## SGM HEPA Filter:

- High performance particulate filter
- 99.97% Efficient on particles down to 0.3 microns
- Only works on airborne contaminants.
- Marginally effective on viruses
  - Viruses are too small to be captured by the HEPA filter
  - It will capture particulates that viruses may be carried on

## Rosenbauer CleanAir:

- Dual filter, particulate and activated charcoal.
- MERV-15 electrostatic particulate filter
  - 85-94% efficient on particles down to 0.3 microns
  - Less effective on viruses than HEPA filter
- Activated Charcoal/Catalyst Filter captures and neutralizes VOCs (Volatile Organic Compounds)
  - Activated charcoal absorbs odors and contaminants
  - Catalyst reacts with and reduces VOCs
  - 75% Effective claim on removing VOCs.
- Only works on airborne contaminants.
- No claims to work on viruses or bacteria.

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